UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/598,815	09/12/2006	Adam S. Leitch	GB 040061	1648

24737 7590 07/17/2008

PHILIPS INTELLECTUAL PROPERTY & STANDARDS
P.O. BOX 3001
BRIARCLIFF MANOR, NY 10510

EXAMINER	
WANG-HURST, KATHY W	

ART UNIT	PAPER NUMBER
4173	

MAIL DATE	DELIVERY MODE
07/17/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/598,815	LEITCH ET AL.	
	Examiner	Art Unit	
	KATHY WANG-HURST	4173	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 September 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 September 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *5/14/2007*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 32 is objected to because it provides further limitations on claim 31 and therefore claim 32 should be a dependent claim on claim 31. Appropriate correction is required.

2. Claim 16 is objected to because of the following informalities: Claim 16 is dependent on its own. It appears that claim 16 is dependent on claim 15. Appropriate correction is required. For examination purposes, it is assumed that claim 16 depend on claim 15.

3. Claims 1, 11, 18, 21, 31 and 32 are objected to because it is not specifically defined how eavesdropping is achieved from the claim language or specification of the application. Therefore eavesdropping is interpreted as a node listening to a transmission between two other nodes.

Claim Rejections - 35 USC § 101

4. Claim 31 is rejected under 35 U.S.C. 101 because "a computer readable medium... comprising" is not an acceptable language in computer-processing related claims. To overcome this rejection, examiner suggests that acceptable language be

used. An example of the acceptable language is "a computer readable medium encoded with a computer program".

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 31 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The "second node" in lines 2 and 4 is referred to both node C and node B in claim 31. For examination purposes, it is assumed the second node is node B.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 1-15, 21-25, 27, 28 and 30 are rejected under 35 U.S.C. 102(e) as being anticipated by **McCorkle (US 2003/0174048).**

Regarding claim 1, McCorkle discloses a method of obtaining distance relationships between nodes in a network comprising a first (A), a second (B) and a third node (C) wherein the second node is within transmission range of the first and the second node, the method comprising,

the third node (C) eavesdropping on a first message (22) being transmitted from the second node (B) to the first node (A) **(Fig.4 item 410_1 is first node, item 405 is second node and item 410_2 is the third node; [0113] second node transmits a join message to all unlinked nodes; [0114] other nodes listen the join message, therefore eavesdropping; [0161] remote devices cooperate with one another to ensure no duplicate information is transmitted to local device, therefore one remote device eavesdrops the transmissions between other remote devices and local device**.)

Regarding claim 2, McCorkle discloses the method as in claim 1, wherein the first message comprises a range request **([0118] distance determining message)**.

Regarding claim 3, McCorkle discloses The method as in claim 1, wherein the first message (22) comprises first timing information and is a response to a range request (21) sent from the first node (A) to the second node (B) **([0121] and Fig. 7 items 703 and 705 mark transmitting time and response to distance-determining request)** .

Regarding claim 4, McCorkle discloses the method as in claim 3 further comprising the

first node (A) determining the distance between the first node and the second node by considering the time of transmission of the ranging request (TI), the time of arrival of the first message (T4) and the first timing information of the first message **([0120] and Fig. 7 items 703 – 715 transmission time t_1 and arrival time t_2)**.

Regarding claim 5, McCorkle discloses the method as in claim 3 wherein the first timing information comprises the time of arrival of the ranging request (T2) at the second node and the time of transmission (T3) of the first message from the second node **([0123] and Fig. 7 item 711 determine processing delay timing d)**.

Regarding claim 6, McCorkle discloses The method as in claim 3, wherein the first timing information comprises the time delay between the arrival of the ranging request and the transmission of the first message at the second node (T3-T2) **([0123] delay and Fig. 7 item 711 determine processing delay timing d)**.

Regarding claim 7, McCorkle discloses The method as in claim 1 further comprising the third node (C) transmitting a second message (24) in response to the first message (22) and the second message (24) comprising second timing information **([0122] and Fig. 7 items 703 -711)**.

Regarding claim 8, McCorkle discloses the method as in claim 7 further comprising the second node (B) receiving the second message (24) and determining the distance

between the second device (B) and the third node (C) by considering the time of transmission of the first message (T3), the time of reception of the second message (T7) and the second timing information **([0122] and Fig. 7 items 703 -711)**.

Regarding claim 9, McCorkle discloses the method as in claim 7 wherein the second timing information comprises the time of arrival of the first message (T5) at the third node (C) and the time of transmission (T6) of the second message from the third node **(Fig. 7 items 701 -711 the process is repeated to measure distance between a local device and remote devices)**.

Regarding claim 10, McCorkle discloses the method as in claim 7 wherein the second timing information comprises the time delay between the arrival of the first message at the third node and the transmission of the second message from the third node (T6-T5) **(Fig. 7 items 701 -711 the process is repeated to measure distance between a local device and remote devices)**.

Regarding claim 11, McCorkle discloses The method of claim 7 wherein the network is a master/slave network, the first node (A) is the master node and the second (B) and third (C) nodes are slave nodes, and wherein the second message (24) is addressed to the master device (A) and the second node (B) receives the second message by eavesdropping **(Fig.4 item 410_1 is first node, item 405 is second node and item 410_2 is the third node; [0113] second node transmits a join message to all unlinked**

nodes; [0114] other nodes listen the join message, therefore eavesdropping; [0069] communication network and Fig. 3 item 325 LAN/PAN, therefore mesh network). Remote devices cooperate with one another to ensure no duplicate information is transmitted to local device, therefore one remote device eavesdrops the transmissions between other remote devices and local device.)

Regarding claim 12, McCorkle discloses the method of claim 7 wherein the network is mesh network and said second message (24) is addressed to said second node (B) **([0069] communication network and Fig. 3 item 325 LAN/PAN, therefore mesh network)**.

Regarding claim 13, McCorkle discloses the method of claim 12 wherein the third device (C) is not within the transmission range of the first device (A) **(Fig. 4 items 410_1 and 410_2 are transmitted to item 405 respectively but not to each other, therefore items 410_1 and 410_2 are not within transmission range)**.

Regarding claim 14, McCorkle discloses the method of claim 7 wherein the request (21), the first message (22) and the second message (24) are comprised in a MAC command frame (29-36) **([0044] MAC; [0048]; [0050], [0135] command message to MAC layer, therefore MAC command frame)**.

Regarding claim 15, McCorkle discloses the method of claim 7 wherein the request

(21), the first message (22) and the second message (24) each comprise a transaction ID (34) and the transaction ID of the request, the first message and the second message match **([0115] a unique identifier associated with each reply)**.

Regarding claim 21, McCorkle discloses a device (C) operable as a node in a wireless network having a first (A) and a second node (B) different from said node, the device comprising

means (Ii) for eavesdropping on a first message (22) being transmitted from the second to the first node **(Fig.4 item 410_1 is first node, item 405 is second node and item 410_2 is the third node; [0113] second node transmits a join message to all unlinked nodes; [0114] other nodes listen the join message, therefore means for eavesdropping; [0161] remote devices cooperate with one another to ensure no duplicate information is transmitted to local device, therefore means for one remote device to eavesdrop the transmissions between other remote devices and local device)**; and

timing means (15) for measuring timing information **(Fig. 7 items 703 -711)**.

Regarding claim 22, McCorkle discloses the device according to claim 21 further comprising

a transmitter (11) for transmitting a second message (24) in response to the first message comprising said timing information **([0044] transmitter; and Fig. 7 items 705)**.

Regarding claim 23, McCorkle discloses the device as in claim 22 wherein the timing information is based on the time of arrival of the first message (T5) and the time of transmission of the second message (T6) **([0057] timing of arriving signal; and Fig. 7 items 703 -711)**.

Regarding claim 24, McCorkle discloses the device as in claim 22 wherein the device is configured to transmit said second message (24) in a time slot assigned to the device by the coordinator (A) node of the network **([0115] [0116] synchronization process regarding reply time)**.

Regarding claim 25, McCorkle discloses the device as in claim 22, wherein the first message (22) comprises a transaction id (34) and the device is configured to include a transaction id (34) in the second message (24) based on to the transaction id of the first message **([0115] a unique identifier associated with each reply)**.

Regarding claim 27, McCorkle discloses the device as in claim 26 wherein the device is configured to accept said first message during its sleep mode **([0066] transmitter and receiver are powered down alternately; and [0109] sleep mode)**.

Regarding claim 28, McCorkle discloses a network comprising a plurality of nodes as claimed in 21 **(Fig. 3)**.

Regarding claim 30. McCorkle discloses the network of claim 28 comprising a master/slave network **([0100] the network can act as a master/slave network)**.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over McCorkle.

Regarding claim 17, McCorkle discloses the method of claim 7 wherein the request (21), the first response (22) and the second response (24) are sent according to the IEEE **802.11**standard **([0096])**. McCorkle fails to disclose the IEEE 802.15.4 standard. Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to adopt the latest standard that is available in the industry in order to keep the system up to date.

11. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over McCorkle in view of **Pitchers (US 2006/0111042)**.

Regarding claim 26, McCorkle discloses the device as in claim 21 wherein the device operates according to the Bluetooth wireless standard **([0095])**. McCorkle fails to disclose the ZigBee standard. However, ZigBee and Bluetooth are comparable protocols, for example, both are types of IEEE 802.15 wireless networks and run in the 2.4 GHz frequency band. **Pitchers** teaches a wireless network adopting protocols like ZigBee or Bluetooth as comparable protocols **([0034])**. Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to incorporate the comparable protocol that is available in the industry in order to widen the operability of the wireless communication network.

12. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over McCorkle in view of **Nurminen (US 2005/0135286)**.

Regarding claim 29, McCorkle discloses the network of claim 28 comprising a communication network ([0069]). McCorkle fails to disclose a mesh network but instead he discloses LAN/PAN **(Fig. 3 item 325 LAN/PAN). Nurminen** teaches a wireless network in which the access points are connected together in a mesh infrastructure in a LAN. Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to incorporate the mesh infrastructure taught by Nurminen into the network disclosed by McCorkle in order to take advantage of flexibility and robustness offered by the mesh network.

13. Claims 16, 18, 19, 20, 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over McCorkle in view of **Wood, Jr. (US 6307848)**.

Regarding claim 16, McCorkle discloses the method of claim 16 wherein the transaction ID (34) is selected by the first node **([0115] unique identifier)**. McCorkle fails to disclose the transaction ID is selected at random. **Wood** teaches device reply mechanism in which each transaction involves ID which is a random value **(col. 6 lines 21-22)**. Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to incorporate the random transaction ID taught by Wood into the unique identifier disclosed by McCorkle in order to improve the security of the network by randomly allocating a number to each transaction.

Regarding claim 18. McCorkle discloses the method of claim 7 wherein the network comprises a plurality of nodes (C, D, E) eavesdropping on the first message (22) and sending a plurality of messages (24, 37, 38), the second node (B) receiving the plurality of messages and calculating the distances from the second node (B) to each of the plurality of eavesdropping nodes (C, D, E) **(Fig. 4 items 4101, 4102…410N are eavesdropping nodes; [0115] receive reply and synchronize and therefore avoid collision)**. McCorkle fails to disclose the method wherein each of the plurality of nodes are assigned a reply period to avoid collision of messages. **Wood** teaches an arbitration scheme which generates a random number and uses it to conduct subsequent uninterrupted communications with devices **(col. 2 lines 15-39)**. Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention

was made to incorporate the collision avoiding mechanism taught by Wood into the method disclosed by McCorkle in order to improve the quality of communication by conducting uninterrupted communication with devices one at a time by addressing only one device **(col. 2 lines 37-39)**.

Regarding claim 19, McCorkle discloses the method of claim 18 **([0143])** but fails to disclose the method wherein the reply period of each node is assigned in dependence on the power capability of the plurality of nodes. **Wood** teaches a collision reduction mechanism by finding a random number for each replying device and grouping replying devices in a form of a tree with different levels. As more levels of the tree are skipped more battery power is saved. The replying devices use now known random value to conduct transmission **(col. 10 lines 43-64)**. Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to incorporate the collision reduction mechanism taught by Wood into the method disclosed by McCorkle in order to improve the power management of the network by taking into consideration of power capability of the transmitting device **(col. 10 lines 43-64)**.

Regarding claim 20, McCorkle discloses the method of claim 18 wherein the reply is synchronized **([0115] synchronization)** but he fails to explicitly disclose that reply period of each node is assigned at random. **Wood** teaches an arbitration scheme which generates a random number and uses it to conduct subsequent uninterrupted communications with devices **(col. 6 lines 7-20)**. Therefore, it would have been obvious

to a person having ordinary skill in the art at the time the invention was made to incorporate the collision avoiding mechanism taught by Wood into the method disclosed by McCorkle in order to improve the quality of communication by conducting uninterrupted communication with devices one at a time by addressing only one device **(col. 6 lines 7-20)**.

Regarding claim 31, McCorkle discloses a computer readable medium to be used in a wireless network comprising a first node (A), a second node (C) and a plurality of eavesdropping nodes (C, D, E) in direct contact with the second node (B) (**Fig.4 item 410_1 is first node, item 405 is second node and item 410_2 is the third node)**, the computer readable medium comprising instructions for each of the plurality of eavesdropping nodes when the second node has transmitted a range response (22) to the first node **(Fig. 7, items 705-707)**. McCorkle fail to disclose allocating a reply period for each of the plurality of nodes when the second node has transmitted a range response to the first node. **Wood** teaches a method which allocates a randomly generated number to a replying device in order to conduct subsequent uninterrupted communications **(col. 6 lines 7-20)**. Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to incorporate the collision avoiding mechanism taught by Wood into the method disclosed by McCorkle in order to improve the quality of communication by conducting uninterrupted communication with devices one at a time by addressing only one device **(col. 6 lines 7-20)**.

Regarding claim 32, McCorkle discloses a computer readable medium **([0135])** but fails to teach a computer readable medium wherein said step of allocating is made in dependence on the power level of each of the plurality of eavesdropping nodes. **Wood** teaches a collision reduction mechanism by finding a random number for each replying device and grouping replying devices in a form of a tree with different levels. As more levels of the tree are skipped more battery power is saved. The replying devices use now known random value to conduct transmission **(col. 10 lines 43-64)**. Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to incorporate the collision reduction mechanism taught by Wood into the method disclosed by McCorkle in order to improve the power management of the network by taking into consideration of power capability of the transmitting device **(col. 10 lines 43-64)**.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Ohlenbusche (US 7187924) discloses an intelligent data network with power management capabilities.

Dupray (US 20040266457) discloses a wireless locate gateway and applications therefor.

Sharony (US 2005/0113090) discloses a system and method for determining location of rogue wireless access point.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to KATHY WANG-HURST whose telephone number is (571)270-5371. The examiner can normally be reached on Monday-Thursday, 7:30am-5pm, alternate Fridays, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Benny Tieu can be reached on (571)272-7490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/KATHY WANG-HURST/
Examiner, Art Unit 4173

/Benny Q. Tieu/
Supervisory Patent Examiner, Art Unit 4173